

CLAIMS

What is claimed is:

- 1 1. A method of facilitating the translation of a digital message between natural
2 languages, the method comprising the steps of:
 - 3 a. converting a digital message in a natural language to a digital message in a
4 pivot language, the pivot language affording translation into a plurality of natural
5 languages by direct substitution of linguistic units, the converting comprising:
 - 6 i. parsing the digital message in the natural language into a plurality
7 of linguistic units to create a parsed message;
 - 8 ii. translating each of the plurality of linguistic units in the parsed
9 message into a unique concept in the pivot language to create a provisional message; and
10 iii. validating the provisional message as the digital message in the
11 pivot language if the provisional message conforms to the pivot language; and
 - 12 b. communicating the digital message in the pivot language to a recipient.
- 1 2. The method of claim 1, the converting step further comprising resolving the
2 provisional message according to a plurality of rules of a constrained grammar.
- 1 3. The method of claim 1, the converting step further comprising prompting
2 selection of a unique concept from the pivot language when the linguistic unit is
3 associated with a plurality of unique concepts in the pivot language.
- 1 4. The method of claim 1 wherein the digital message in the pivot language is an
2 instant message and the recipient is an instant message service.
- 1 5. The method of claim 1 wherein the digital message in the pivot language is a
2 piece of electronic mail and the recipient is an electronic mail server.
- 1 6. The method of claim 1 wherein the recipient is a translation module.

1 7. The method of claim 1, the method further comprising converting the sound of a
2 human voice into a digital message in a natural language.

1 8. The method of claim 1, the method further comprising prompting selection of pre-
2 process or post-process disambiguation.

1 9. The method of claim 1, the method further comprising communicating an applet
2 that initiates translation to the recipient with the digital message in the pivot language.

1 10. The method of claim 1 wherein the communicating step comprises
2 communicating the digital message in the pivot language to a first recipient, the method
3 further comprising:

4 c. converting the digital message in the pivot language into a digital message
5 in a second natural language, the converting comprising:

6 i. identifying the second natural language associated with a second
7 recipient;

8 ii. accessing a database associated with the second natural language;
9 and

10 iii. translating the digital message in the pivot language into the digital
11 message in the second natural language using the database; and

12 d. communicating the digital message in the second natural language to the
13 second recipient.

1 11. The method of claim 10 wherein the first recipient is the second recipient.

1 12. An apparatus for facilitating the translation of a digital message between natural
2 languages, the apparatus comprising:

3 a conversion module, the conversion module converting a digital message in a
4 natural language into a digital message in a pivot language, the pivot language affording
5 translation into a plurality of natural languages by direct substitution of linguistic units,
6 the conversion module comprising:

7 a parsing module, the parsing module parsing the digital message in the

8 natural language into a plurality of linguistic units;
 9 a translation module, the translation module accessing a database to
 10 translate each of the plurality of linguistic units into a unique concept in the pivot
 11 language by direct substitution to create a provisional message; and
 12 a validation module, the validation module validating the provisional
 13 message as the digital message in a pivot language if the provisional message conforms
 14 to the pivot language; and
 15 a communication device, the communication device communicating the digital
 16 message in the pivot language to a recipient.

1 13. The apparatus of claim 12 wherein the conversion module further comprises:
 2 a grammar module, the grammar module resolving the plurality of linguistic units
 3 in the provisional message into conformity with a plurality of rules of a constrained
 4 grammar.

1 14. The apparatus of claim 12 wherein the conversion module further comprises:
 2 a disambiguation module, the disambiguation module prompting selection of a
 3 unique concept from the pivot language when the linguistic unit is associated with a
 4 plurality of unique concepts in the pivot language.

1 15. The apparatus of claim 12 wherein the digital message in the pivot language is an
 2 instant message and the recipient is an instant message service.

1 16. The apparatus of claim 12 wherein the digital message in the pivot language is a
 2 piece of electronic mail and the recipient is an electronic mail server.

1 17. The apparatus of claim 12 wherein the recipient is a translation module.

1 18. The apparatus of claim 12 further comprising:
 2 a speech recognition module, the speech recognition module converting the sound

1 19. The apparatus of claim 12 wherein the conversion module prompts selection of
2 pre-process or post-process disambiguation.

1 20. The apparatus of claim 12 further comprising:
2 an applet association module, the applet association module optionally associating
3 an applet that initiates translation with the digital message in the pivot language.

1 21. The apparatus of claim 12 wherein the communication device is a first
2 communication device, the first communication device communicating the digital
3 message in the pivot language to a first recipient, the method further comprising:
4 a second conversion module, the second conversion module being responsive to a
5 second natural language associated with a second recipient and converting the digital
6 message in the pivot language into a digital message in a second natural language, the
7 second conversion module comprising:
8 a database accessor, the database accessor accessing a database associated
9 with the second natural language; and
10 a translation module, the translation module translating the digital message
11 in the pivot language into the digital message in the second natural language using the
12 database accessor; and
13 a second communication device, the second communication device
14 communicating the digital message in the second natural language to the second
15 recipient.

1 22. The apparatus of claim 21 wherein the first recipient is the second recipient.

1 23. The apparatus of claim 21 wherein the first communication device is the second
2 communication device.

1 24. A method of translating a digital message into a natural language, the method
2 comprising the steps of:
3 a. converting a digital message in a pivot language into a digital message in a
4 natural language, the pivot language affording translation into a plurality of natural

5 languages by direct substitution of linguistic units, the converting comprising:
6 i. identifying a natural language associated with a recipient;
7 ii. accessing a database associated with a natural language; and
8 iii. translating the digital message in the pivot language into the digital
9 message in the natural language using the database; and
10 b. communicating the digital message in the natural language to the
11 recipient.

1 25. The method of claim 24 further comprising the step of:
2 receiving a selection of a natural language to associate with the recipient.

1 26. The method of claim 24 wherein the digital message in the natural language is an
2 instant message and the recipient is an instant message service.

1 27. The method of claim 24 wherein the digital message in the natural language is a
2 piece of electronic mail and the recipient is an electronic mail server.

1 28. The method of claim 24 further comprising the step of:
2 directly substituting a linguistic unit in the digital message in the pivot language
3 with an equivalent linguistic unit from the database associated with the natural language.

1 29. The method of claim 24 further comprising the step of:
2 reorganizing the linguistic units in accordance with a grammatical rule associated
3 with the natural language.

1 30. The method of claim 24, the method further comprising the step of:
2 synthesizing the sound of a human voice saying the digital message in the natural
3 language.

1 31. The method of claim 24, the method further comprising the step of causing a
2 serving to receive a digital message in a pivot language, and wherein the converting step

3 further comprises causing the server to convert the digital message in the pivot language
4 into a digital message in a natural language.

1 32. The method of claim 24 wherein the communicating step is performed in a mode
2 of communication associated with the recipient.

1 33. The method of claim 24 wherein the converting step is responsive to the
2 execution of an applet.

1 34. An apparatus for translating a digital message into a natural language, the
2 apparatus comprising:
3 a conversion module, the conversion module being responsive to a natural
4 language associated with a recipient and converting a digital message in a pivot language
5 into a digital message in the natural language, the conversion module comprising:
6 a database accessor, the database accessor accessing a database associated
7 with the natural language; and
8 a translation module, the translation module translating the digital message
9 in the pivot language into the digital message in the natural language using the database
10 accessor; and
11 a communication device, the communication device communicating the digital
12 message in the natural language to the recipient.

1 35. The apparatus of claim 34 further comprising:
2 an index, the index enabling a linguistic unit representing a unique concept in the
3 natural language to be directly substituted for a linguistic unit representing a unique
4 concept in the pivot language.

1 36. The apparatus of claim 34 wherein the digital message in the natural language is
2 an instant message and the recipient is an instant message service.

1 37. The apparatus of claim 34 wherein the digital message in the natural language is a
2 piece of electronic mail and the recipient is an electronic mail server.

1 38. The apparatus of claim 34 wherein the translation module translates the digital
2 message in the pivot language by directly substituting a linguistic unit in the pivot
3 language with an equivalent linguistic unit in the natural language from the database.

1 39. The apparatus of claim 34 wherein the translation module reorganizes a plurality
2 of linguistic units in the digital message in the pivot language in accordance with a
3 grammatical rule associated with the natural language.

1 40. The apparatus of claim 34 further comprising:
2 a voice synthesis module, the voice synthesis module synthesizing the sound of a
3 human voice saying the digital message in the natural language.

1 41. The apparatus of claim 34 further comprising:
2 a server accessor, the server accessor transmitting the digital message in the pivot
3 language to a server for conversion into the digital message in the natural language.

1 42. The apparatus of claim 34 wherein the communication device communicates the
2 digital message in the natural language to the recipient in a mode of communication
3 associated with the recipient.

1 43. The apparatus of claim 34 wherein the conversion module is responsive to the
2 execution of an applet.